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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,493	12/30/2004	Gianfranco Maris	Q85644	5393

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EXAMINER	
NICHOLS, CHRISTOPHER S	
ART UNIT	PAPER NUMBER
4191	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,493	MARIS, GIANFRANCO	
	Examiner	Art Unit	
	CHRISTOPHER S. NICHOLS	4191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/30/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

METHOD FOR THE CONTINUOUS PRODUCTION OF A COMPOSITION COMPRISING RUBBER, HYDROCARBON RESIN AND SOLVENT

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1, Claim 1 recites the limitation "the other ingredients" in line 5 of Claim 1. There is insufficient antecedent basis for this limitation in the claim. For purposes of compact prosecution, it is assumed the other ingredients comprise the rubber and resin.

Regarding Claim 2, Claim 2 recites the limitation “distance of at least 4 D" in line 2 of Claim 2. The phrase renders the claim indefinite because it is unclear what claimed distance limitation encompasses.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tynan (US 4,028,302) in view of Plamthottam et al. (US 4,906,421).

Regarding claim 1, Tynan teaches a process for the production of a composition comprising mixing an acrylonitrile polymer (see Fig. 1 at 6), i.e. rubber, and solvent (see Fig. 1 at 9) in a twin-screw extruder (see Fig. 1 at 1; see also column 3 line 37-42). The solvent is introduced at a point downstream the initial section of the extruder (see Fig. 1 at 11). In addition, the temperature of the composition (see Table 1) is kept below the boiling point of the solvent (see column 5 line 46-49), i.e. less than 150 °C. Tynan is silent regarding adding a hydrocarbon resin (tackifying resin) to the composition. Plamthottam et al. teach adding tackifying resins (see column 11 line 26-29) to a composition comprising a rubber (see column 4 line 48-50) and solvent (see column 7 line 50-54). The tackifying resin may be alpha pinene (column 13 line 55), which is a hydrocabon. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add a tackifying resin to the composition in the method by Tynan because one of ordinary skill would recognize that adding tackifying resins to the composition gives the composition adhesive properties.

Regarding claims 2-3, Tynan teach an extrusion device with a diameter of 83.2 mm, i.e. 83 mm + 0.2 mm (see column 6 line 7-9). The solvent is injected in three steams (plurality of different point) at points 515mm, 645mm, and 755 mm from the upstream end of the device.

Regarding claim 6, Tynan teach a composition comprising mixing an acrylonitrile polymer. Acrylonitrile polymer is a natural or synthetic rubber as evidenced by Hall (US 4,178,337; see column 3 line 47-57).

Regarding claim 7, Plamthottam et al. teach adding tackifying resins to a composition comprising a rubber and solvent as discussed above in the rejection of claim 1.

Regarding claim 8, Plamthottam et al. teach adding tackifying resins (see column 11 line 26-29) to a composition comprising a rubber (see column 4 line 48-50) and solvent (see column 7 line 50-54). The solvent used may comprise hexane (see column 7 line 62-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use hexane as the solvent in the method by Tynan in view of Plamthottam et al. because Plamthottam et al. teach hexane reduces the viscosity of the composition so that it may be easily handled in bulk (see column 7 line 64-66).

Regarding claim 9, Tynan teaches rotating the screw elements at the same time, i.e. co-rotate (see column 4 line 9-11).

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tynan in view of Plamthottam et al. as applied to claim 1 above, and further in view of Burbank et al. (Producing adhesives and sealants with a twin-screw. *Adhesives & Sealants Industry*. June/July 1998. Vol. 5 Issue 5, p. 44).

Regarding claim 4, Plamthottam et al. teach heating the composition from 8°C and 160°C (see claim 7). Plamthottam et al. are silent regarding keeping the portion of the extruder upstream of the solvent addition point between 60°C and 120°C and keeping the portion of the extruder downstream of the solvent addition point between 40°C and 80°C. Burbank et al. recognize temperature is a very important process variable (see p. 4 and p. 5) in the continuous compounding of compositions to produce adhesives and sealants with a twin-screw extruder (see Title). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention without undue experimentation to determine optimum temperature range of the extrusion process in the method by Tynan in view of Plamthottam et al. because Burbank et al.

teach that that temperature is a process variable which controls the quality of an adhesive produced (see p. 5 paragraph 5-7). "Discovery of optimum value of result effective variable in known process is ordinarily within skill of art." *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 5, Tynan in view of Plamthottam et al. teach every claimed limitation except adding the tackifying resin (hydrocarbon resin) at a point of the extruder downstream the initial section. Burbank et al. teach adding tack resins at successive locations downstream the initial section (see p. 3 last two paragraphs; see also p. 4 first paragraph). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to add the tackifying resin (hydrocarbon resin) at a point of the extruder downstream the initial section in the method by Tynan in view of Plamthottam et al. because Burbank et al. teach adding tack resin downstream the initial section reduces viscosity differential (see p. 3 last paragraph).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Nichols whose telephone number is (571) 270-3969. The examiner can normally be reached on Monday thru Thursday 7:30 AM to 5:00 PM EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher S. Nichols/
Examiner, Art Unit 4191

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 4191